



7 January 2008 Tornado at the Rolla-Vichy National Airport

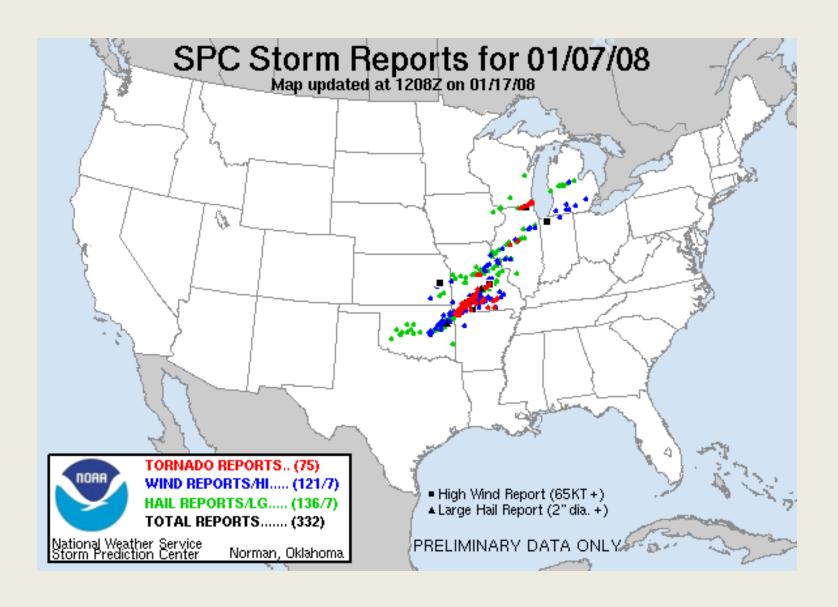
John Gagan

NOAA • National Weather Service Springfield, Missouri

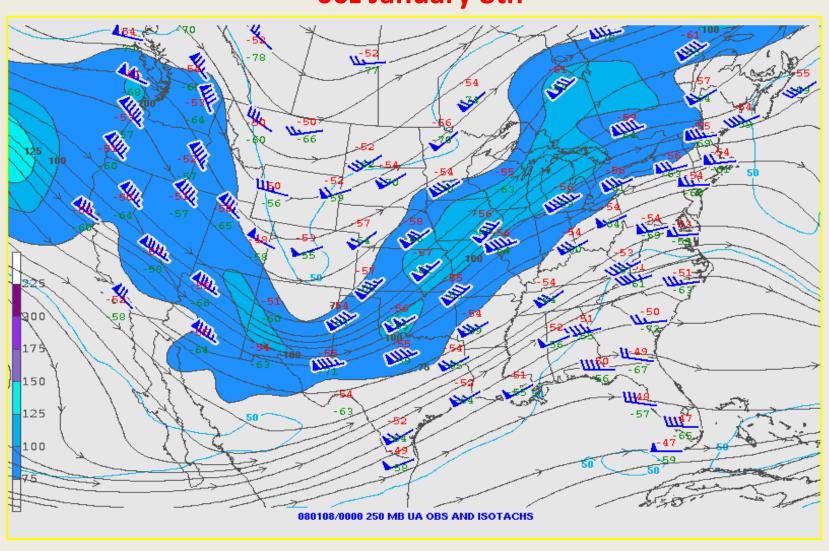
Outline

- Event overview
- Focus on tornadic supercell affecting KVIH
 - Reflectivity, SRM and Base Velocity Imagery
 - Warning decision process
 - Role of Heuristics ("gut feelings")
- KVIH observations (1 min, 5 sec) direct hit!
- Pics from Survey

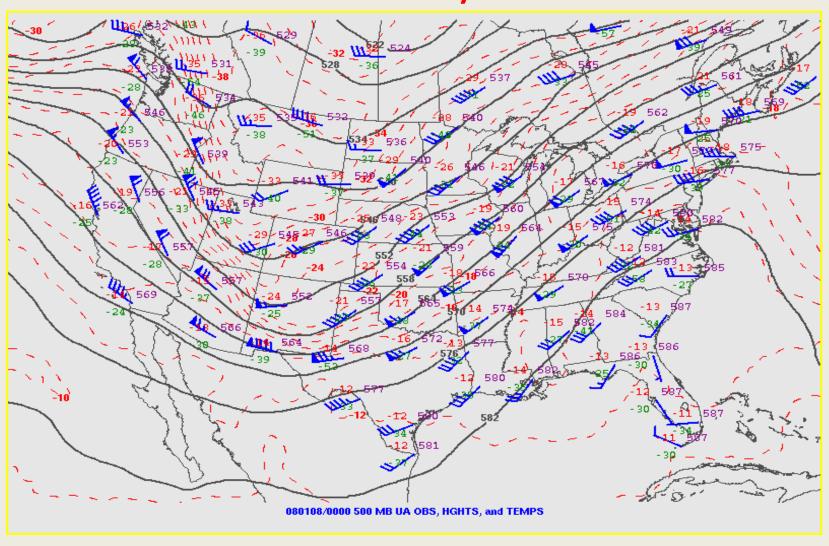
- 12 hours of tornadoes, hail, wind and flooding
- Watches: 3 Tornado Watches (1 PDS), 1 Severe
- Warnings: 62 Tornado, 33 Severe, 4 Flash Flood
- 161 Severe Weather Reports
- 33 Tornadoes
- 3 Fatalities, Numerous Injuries
- In previous Januaries from 1950-2007, only 5
 Tornadoes were reported in SW Missouri



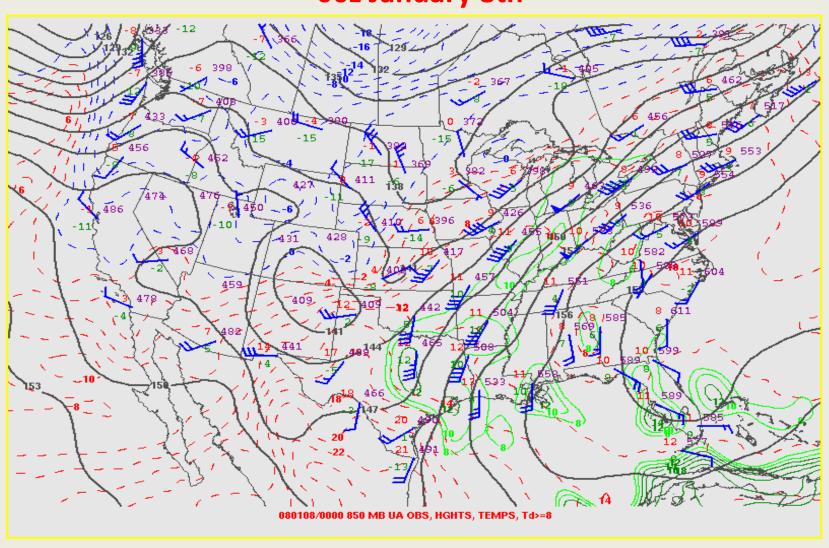
250 mb 00z January 8th

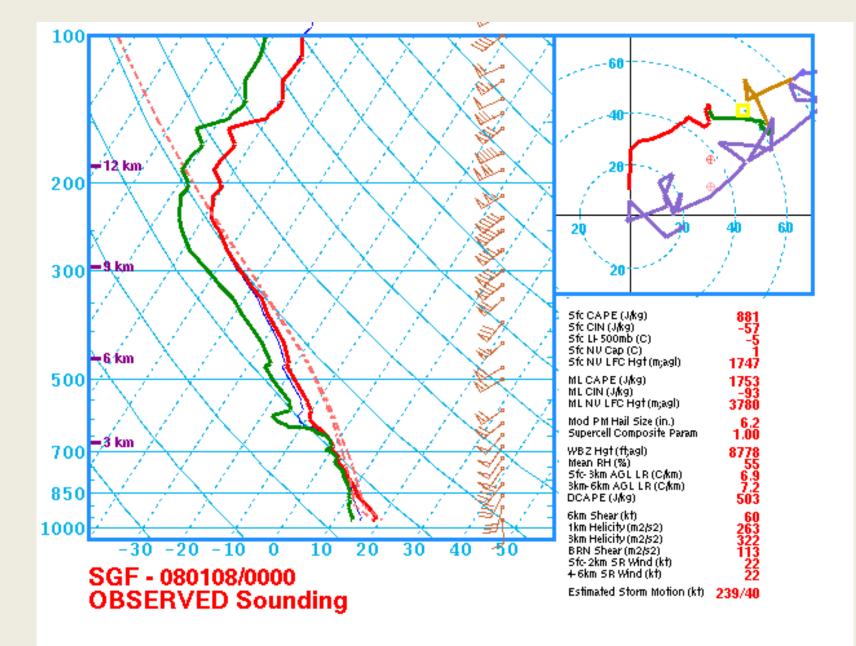


500 mb 00z January 8th



850 mb 00z January 8th

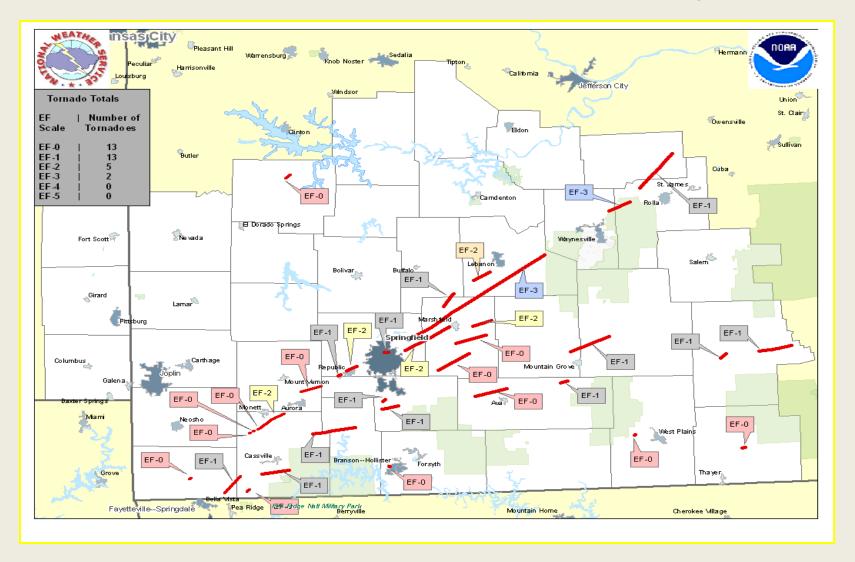




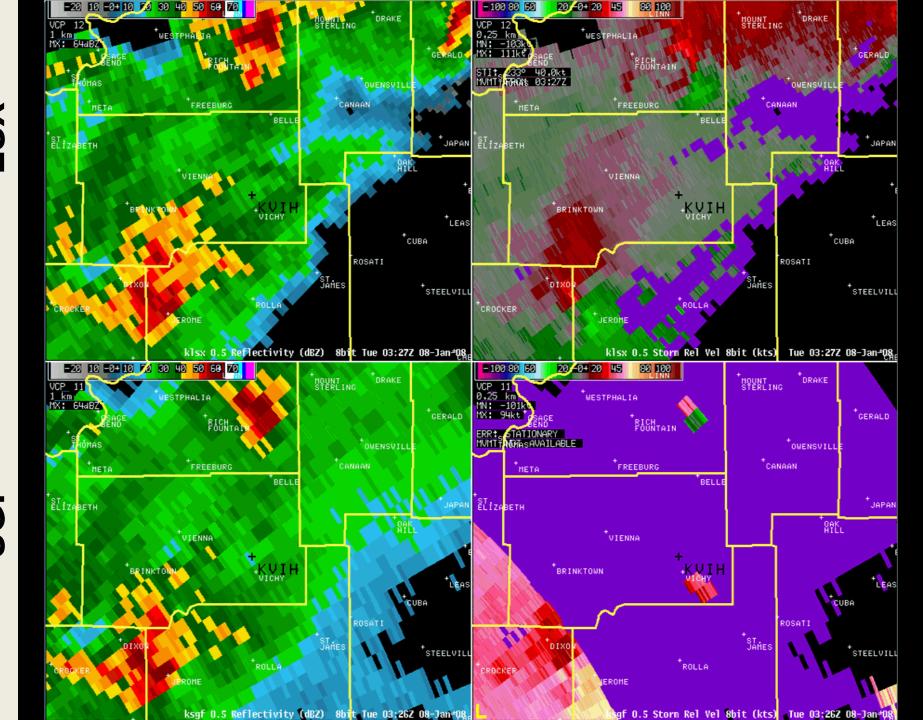
Loop of Event

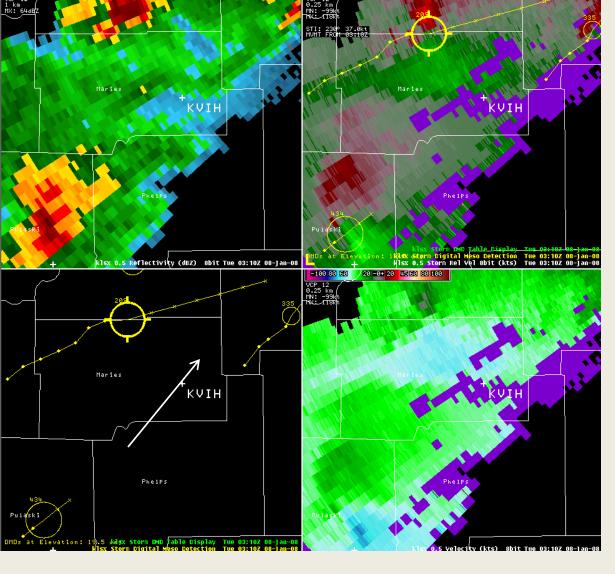


33 Tornadoes in January!

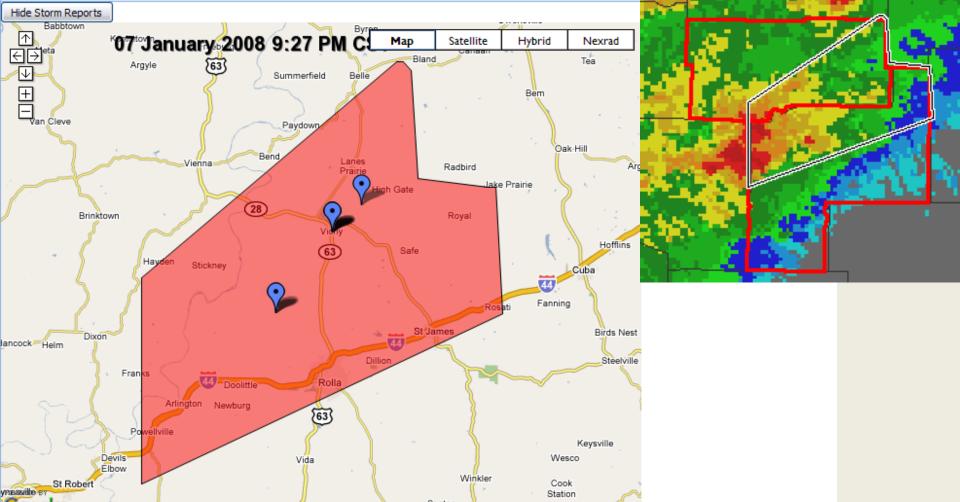


Only 5 tornadoes reported in January from 1950-2007!





- •KLSX WSR 88D
- •KVIH is ~5200 ft AGL
- •Rank 5-6 Meso
 - non continuous
- •No TVS
- Warning decision
- ~0325 UTC



Map data @2008 Tele Atlas - Terms of Use

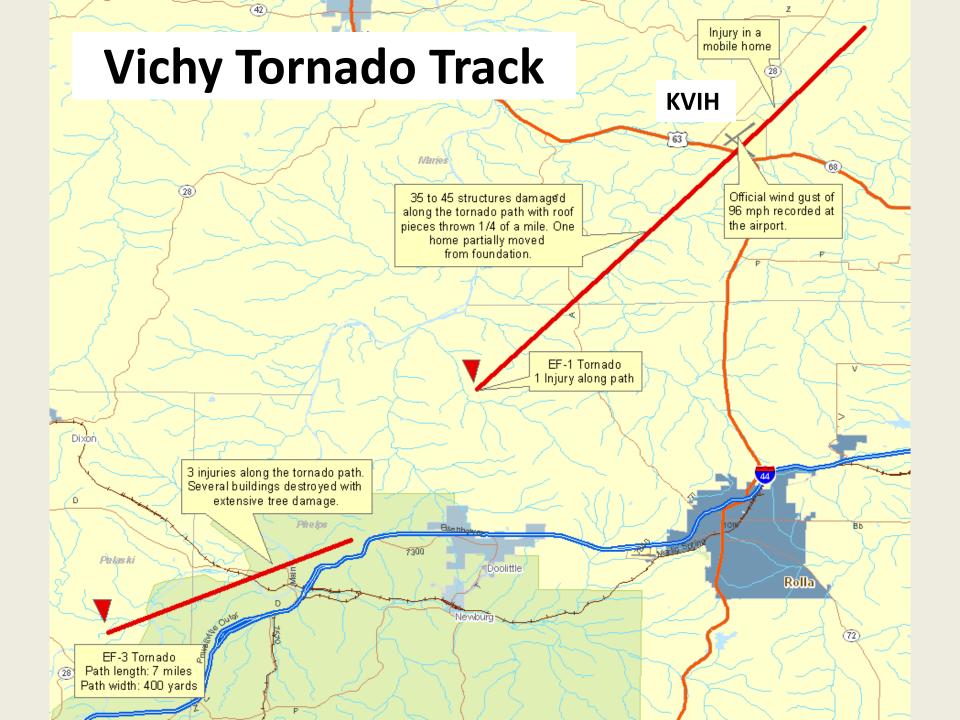
From IEM COW – Iowa State University

Warning Decision

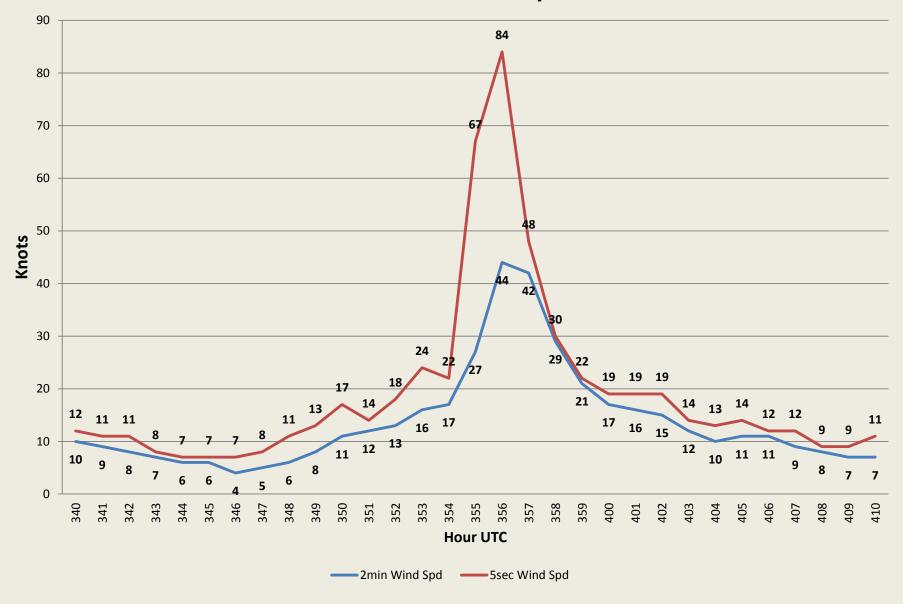
- Quickly transitioned from coordinator role to warning operator
 - Bathroom breaks!!!!
 - Warning operator fatigue
- Assigned to Sector 3 (central MO)
- Meso was weakening
- No recent (<30 min) reports from the storm
- Why continue to warn?

Warning Decision

- Ultimately, the warning decision hinged on a heuristic (gut feeling)
 - Meso began to reorganize/strengthen
 - Reflectivity structure in tact
 - Not much info < 8000 ft</p>
 - Past history numerous reports of damage cyclic
- "Warn on a cyclic supercell until it's someone else's problem."
- Great reference
 - "Gut Feelings: The Intelligence of the Unconscious"
 - Gerd Gigerenzer



KVIH Station 2-min and 5-sec Wind Speed Plot 340 to 410 UTC 8 January 2008

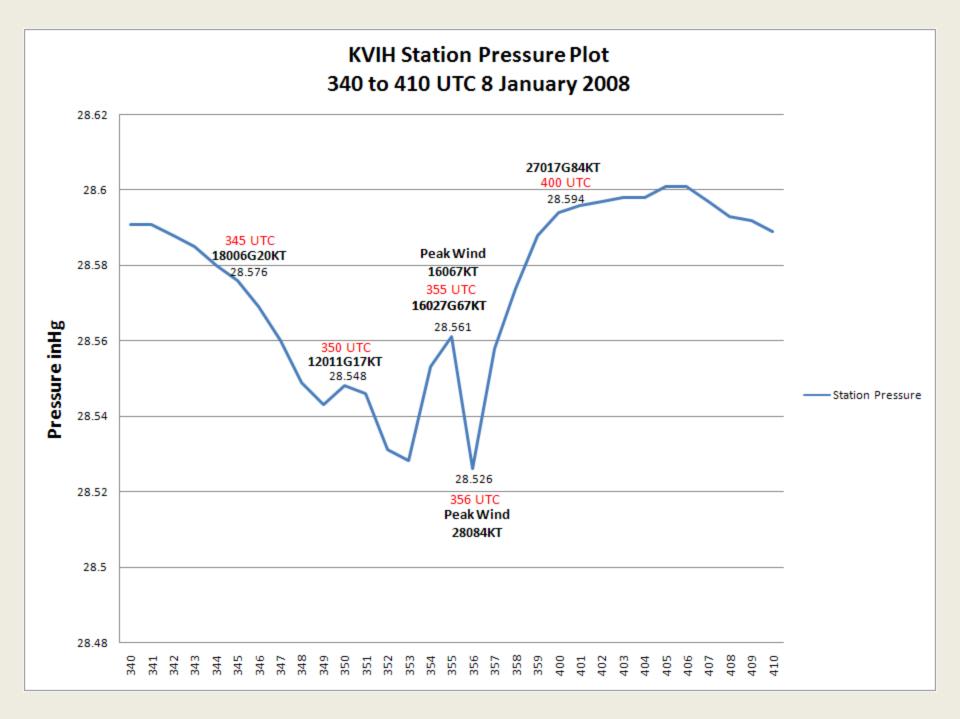


KVIH Takes a Direct Hit!

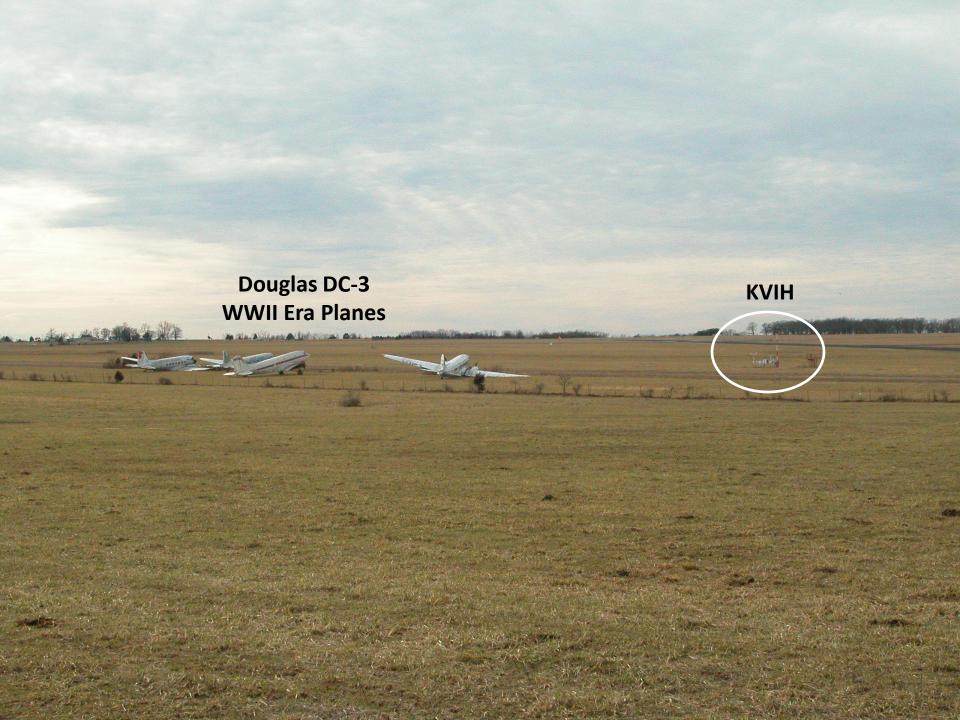


- Wind direction switched from ESE to WNW
- Wind speed changed fromto 44 knots

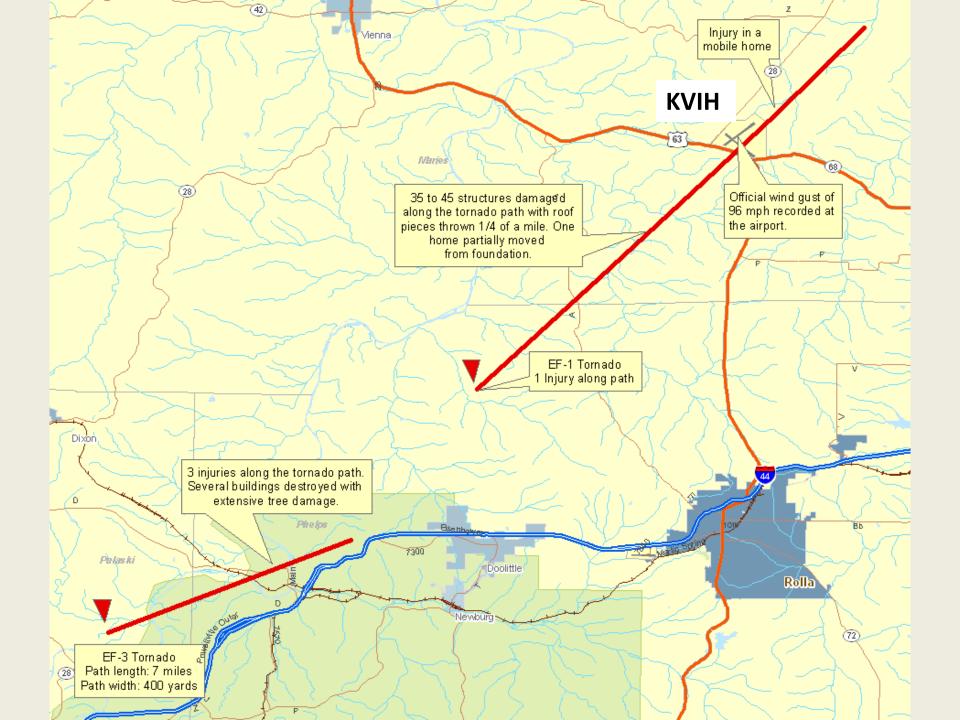
- Wind direction switched from ESE to NW
- Wind speed changed from 8 to 84 knots















EF Rating

- Main casualty was trees
 - A few hard and soft wood trees uprooted
 - DIs 27 and 28, highest DOD was 3
- Most extensive damage was to the destroyed mobile home
 - Not tied down well Pushed and rolled
 - Debris field scattered over 200 yds
 - DI 3 (single wide), DOD 9 (lower bound)
 - Damage consistent with high end EF-1
- VIH ASOS ~ 1-1.5 mi west of mobile home damage
 - 5 second wind speed well within EF-1 range
- 13 mile path, max width 100 yds, max winds 110 mph

Acknowledgements

- Ron Przybylinski LSX radar
- Kelsey Angle Prior work on event
- The SGF office for a job well done



Thank You



John.Gagan@noaa.gov